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ROYAL GARDENS, KEW.

BULLETIN

OF

MISCELLANEOUS INFORMATION.

No. 56.] AUGUST. [1891.

CCVI.—ORCHID NOMENCLATURE.

It seems desirable to state the position of Kew with regard to orchid nomenclature. In no other country are pains and money so lavishly expended on the cultivation of the plants of this family as in England. In no other country are so many species to be found in a living state as in our private collections. And a large capital is invested in the commerce by which these collections are supplied.

It is the business of botanical science to furnish such plants with names under which they can be recognised, and with technical descriptions, by means of which the names can be fixed and the plants identified. For this purpose it is necessary that a standard of nomenclature should be maintained by some competent authority. During the

LONDON:
PRINTED FOR HER MAJESTY'S STATIONERY OFFICE,
BY EYRE AND SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.

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1891.

Price Twopence.

middle of the present century this function was performed by the well-known botanist, Dr. Lindley. After his death, his admirable private herbarium of orchids, amounting to 3,000 sheets, was purchased in 1865 by the Government for Kew. In 1863 Dr. H. G. Reichenbach was appointed Professor and Director of the Botanical Gardens at Hamburgh, and from that time made the study of orchids the scientific business of his life. He was speedily recognised as occupying the place of Lindley, and cultivators of orchids in all countries were in the habit of sending their specimens to Hamburg, for identification and determination. Meanwhile, Kew had continued to amass what is, on the whole, probably the largest comprehensive herbarium of these plants. It was Professor Reichenbach's custom to spend in most years a few weeks at Kew, and he had the opportunity of examining and, in some cases, of describing the new accessions.

He was, however, in the habit of describing the novelties sent him by correspondents from English collections in the pages of the *Gardeners' Chronicle*, and of these, for the most part, no other record exists at Kew. Thus in the genus *Dendrobium* about 160 species are represented in the Kew Herbarium by names above ; and in *Epidendrum* as many as 200.

The defect of Professor Reichenbach's method was that he never brought the scattered work of his life to anything like a comprehensive review. To a certain extent he had the clue to it himself, but when oppressed with failing health in the latter years of his life, he seems to have become in some degree overwhelmed with the enormous amount of material which he had accumulated. And it is now ascertained that he often described the same species more than once under independent names. There is the further difficulty that he was not a felicitous expert in the art of describing plants, and from his bare descriptions alone it is often all but impossible to identify the species which he had in view.

This difficulty would not have been considerable if, after his death in 1889 he had, as was confidently expected he would do, left his herbarium to some public institution where it would be open to the inspection of those who took up his work. For reasons on which it is easy to speculate but for which it is difficult to account, he bequeathed his collections to the Imperial Hof Museum at Vienna, on the condition that they should be sealed up for 25 years.

This singular provision undoubtedly placed the "orchid-world" in a rather cruel position. Reichenbach was no longer available to give them names; and his herbarium was not accessible to ascertain what he had done in the past. To this no one having an unnamed orchid in his hands possessed very much in the way of a clue. Nevertheless something had to be done, and amateurs of orchids turned to Kew for help. It seemed a proper part of the functions of the national botanical establishment to render all the assistance in its power as regards the solution of purely botanical problems.

Kew was not, as will have been seen, on the whole badly equipped for the task. In the first place it possessed Lindley's collections, the classical starting point of systematic orchidology. Next, Mr. Bentham had devoted two years at Kew to the elaboration of the family for *Bentham and Hooker's Genera Plantarum*. This was published in 1883. Bentham thoroughly sorted the copious material at Kew into genera, which he defined on a clear basis. Reichenbach's work upon various collections preserved at Kew, which he described and published, is of course available here. Moreover, Sir Joseph Hooker during

1888–90 thoroughly worked out the orchids of India, amounting to about 1,300 species (in 113 genera) for the fifth volume of his *Flora of British India*. Not to speak of other countries, the collection of South Africa orchids is pronounced by Mr. Bolus, F.L.S., their most recent monographer, to be the most complete in existence. The Kew collection of living orchids now amounts to 1,400 species, the nomenclature of which is all carefully determined; the most recent enumeration of the number of existing species is that of Sir Joseph Hooker, who puts them at 5,000.

On the whole Kew probably stands in a better position to serve as a standard of orchid nomenclature than any other botanical establishment. The only real difficulty in its way is how to deal with Reichenbach's indeterminable descriptions and nomenclature. Various correspondents have, however, rendered very useful assistance in filling up this gap by the communication of specimens from living plants which Reichenbach had named. Much more might be done in this direction, and in time it can hardly be doubted that the vast proportion of Reichenbach's types might be recovered.

There is, however, always the risk that when an unnamed orchid cannot be run down in the Kew Herbarium it may not really be undescribed but may be lurking somewhere with a name in Reichenbach's collections. This, however, is a problem which, for the next quarter of a century, cannot be solved. For practical purposes it has therefore been decided to assume that such an orchid is new and to describe it with an appropiate name. This task has been entrusted to Mr. Rolfe, one of the assistants in the Kew Herbarium; and as the work will be done in official time, the descriptions will be published from time to time in the *Kew Bulletin*. It must be the aim of every botanist to avoid the multiplication of names and the piling up of synonyms. But the world cannot wait on posterity, and some one, a quarter of a century hence, may have the patience to disinter from Reichenbach's Herbarium, if it is thought worth while, any names which have the prescription of priority. If, even so astute and experienced a botanist as Sir Joseph Hooker, found himself unable to penetrate the mystery which surrounds many of Reichenbach's names and descriptions, it seems scarcely worth while attempting to rescue them from the oblivion into which for the present they must fall.

Shortly after Professor Reichenbach's death the Royal Horticultural Society appointed a Standing Committee to endeavour, amongst other objects, to maintain some standard of uniformity in orchid nomenclature. The following correspondence is published as defining the position taken by Kew in the matter:—

ROYAL HORTICULTURAL SOCIETY to ROYAL GARDENS, KEW.

Royal Horticultural Society,
117, Victoria Street, S.W.,
SIR, 26th August 1889.

IN pursuance of a resolution passed at a special meeting the Council of this Society have appointed a Committee to draw up "the "rules which they consider should be followed in the naming of "orchids" for garden purposes. I was requested to act as hon. sec. pro tem, and, in that capacity, to request you to be so good as to nominate one member of your staff to act on the Committee. The keeper of the Botanical Department of the British Museum will also be asked to name a member. It is probable that no meeting of the

Committee will take place till the end of the recess, but, in the meantime, I shall be glad to learn your views on the subject, and to receive any communication for the Committee with which you may be inclined to favour it.

I am, &c.

The Director, (Signed) MAXWELL T. MASTERS.
Royal Gardens, Kew.

ROYAL GARDENS, KEW, to ROYAL HORTICULTURAL SOCIETY.

SIR, Royal Gardens, Kew, 26th August 1889.

I HAVE the honour to acknowledge the receipt of your letter to hand this morning, in which you inform me that the Council of the Royal Horticultural Society have appointed a Committee to draw up the rules which they consider should be followed in the naming of orchids for garden purposes, and requesting me to name one member of my staff to act on the Committee.

2. In anticipation of this action on the part of the society, I have already communicated to the *Gardeners' Chronicle* my views upon the subject. It appears to me that there are two entirely different questions involved.

i. The determination of the systematic position, *i.e.*, the genus and species of orchids as they exist in nature, uninfluenced by cultivation, and without reference to those variations in size, colour, and texture, which, though of very great horticultural importance, are not for the most part taken note of by botanists. This is purely scientific work, which can only be carried on with the resources of a herbarium and library by experts who have given careful study to the subject. I have already publicly stated that I am prepared, as far as the resources of this establishment will allow, to name orchids on precisely the same footing as all other plants not coming within the designation of florists' flowers. I may add that the assistance of this establishment in the matter has already largely been taken advantage of, with, I think, mutual benefit to horticulturalists and to Kew. I do not, however, see how this branch of the work could be in any way aided by the deliberations of a committee, or that anything would be gained by a member of the Kew staff attending them.

ii. The establishment of a definite system of nomenclature for cultural strains of ascertained species of orchids. This is a task of great importance which the proposed Orchid Committee is well qualified to take up. But the principles of botanical classification have nothing to do with the matter, and botanists should in my judgment not meddle with it. It appears to me that orchid growers will create their own standards of excellence with regard to the cultivated varieties of orchids, just as with any other florists' flowers. Such a standard will be a matter of taste and judgment but not of science, and horticulturalists are entitled to name on a purely horticultural basis any form which they wish to recognise as distinct, when they have secured adequate evidence of its permanence. It appears to me that the proper precedent to follow is that of the Narcissus Committee. Such forms should be distinguished by vernacular names so that they may no longer be confused with botanical varieties, and the Committee should register such names as having its authority, accompanying the name in each case with such distinctive marks as may serve to define it.

3. In the work of the Committee as above defined, I do not see that any member of the Kew scientific staff could give any effective assistance. I must further point out that our officers are already hard-worked; and the absence on extraneous duties of those who work during prescribed official hours is contrary to the regulations of the Civil Service.

I am, &c.

Dr. Masters, F.R.S., 117, Victoria Street, S.W. (Signed) W. T. Thiselton Dyer, Director.

CCVII.—NEW GARDEN ORCHIDS: DECADE 1.

1. **Physosiphon guatemalensis**, *Rolfe*, *n. sp.* — Folia oblonga, brevissime bidentata, carnosa, basi attenuata, 1¼–1½ poll. longa, 7–8 lin. lata; petiolus ½ poll. longus. Racemi 3–4 poll. longi, graciles, 12–16 flori. Bracteæ spathaceæ, acutæ, carinatæ, 2 lin. longæ. Pedicelli 3 lin. longi; flores 3–3½ lin. longi. Sepala oblonga, apiculata, arcte carinata, carnosa. Petala obovata, obtusa, glabra, ½ lin. longa. Labellum valde carnosum, 1 lin. longum, læviter trilobum, basi attenuatum, lobo medio oblongo obtuso obscure crenulato, lobis lateralibus parvis erectis rotundatis. Columna alata.

A small species which appeared with *Odontoglossum grande*, Lindl., from Guatemala, in the Glasnevin Botanic Garden, and was sent to Kew for determination by the Curator, Mr. F. W. Moore, in June 1890, and again during the present year. It is nearly allied to *P. Loddigesii*, Lindl., but is smaller in all its parts, especially in the much shorter tube of the sepals. The sepals are deep yellow; the petals light maroon purple, the lip somewhat darker, and the column light green with broad maroon-purple wings.

2. **Bulbophyllum denticulatum**, *Rolfe*, *n. sp.*—Pseudobulbi subdistantes, tetra-v. pentagoni, 1¼ poll. longi, 1 poll. lati, diphylli. Folia lineari-oblonga, obtusa, 3–3½ poll. longa, 5–8 lin. lata. Scapus erectus, gracilis, 5 poll. longus. Racemus subdeflexus, multiflorus. Bracteæ ovatæ, subacutæ, 1½–2 lin. longæ. Sepala coriacea, ovata, acuminata, carinata, 3 lin. longa; lateralia subobliqua. Petala membranacea, elliptico-ovata, mucronulata, minute denticulata, 2 lin. longa, nervo medio valido. Labellum carnosum, lineari-oblongum, obtusum, glabrum, 2 lin. longum. Columna brevis, alis oblongis acutis submembranaceis.

A small species, native of Sierra Leone, sent to Kew for determination by Mr. James O'Brien, of Harrow-on-the-Hill, Middlesex, in May 1891. It has the habit of *B. flavidum*, Lindl., from the same country, but is quite different in numerous structural details. The flowers, which are borne in a somewhat drooping spike, are about three lines long, the sepals of a pale purple-brown tint; the petals white, with a very strong purple midnerve, and very narrow purple margin; and the lip orange, except a narrow pallid greenish-brown area down the centre, which is narrowly bordered with maroon-purple. The petals are minutely but very distinctly denticulate, whence the specific name is derived.

3. **Bulbophyllum nigripetalum**, *Rolfe*, *n. sp.*—Pseudobulbi approximati, late depresso-ovoidei, 6 lin. longi, 8 lin. lati, pallide virides, monophylli. Folia lanceolato-linearia, obtusa, circa 3 poll. longa, 5 lin.

lata. Scapus erectus, gracilis, 6–10 poll. longus. Racemus multiflorus, subsecundus. Bracteæ lanceolatæ, acutæ, carinatæ, ¾ lin. longæ. Sepalum posticum oblongum, obtusum, ciliatum, 2¼ lin. longum, ¾ lin. latum; sepala lateralia paullo latiora, mucronulata. Petala obovato-oblonga, obtusa, arcte ciliata, 1 lin. longa. Labellum valde carnosum, anguste oblongum, obtusum, ciliatum et breviter pubescens, 2 lin. longum, basi canaliculatum. Columna brevis, alis latis subacutis.

A most distinct species, first sent to Kew for determination by Mr. James O'Brien, of Harrow-on-the-Hill, Middlesex, in May 1889, and again during the present year. It is said to have been imported by Messrs. F. Sander & Co., of St. Albans, from the West Coast of Africa. It has somewhat the habit of the preceding, but the scape is longer, and the flowering part more erect. This, as well as the ovaries, is of a light glaucous green. The flowers are under three lines long; the sepals pale yellowish white, with three to five light maroon lines; the petals and lip of the darkest purple-black; and the column pale greenish, with purple margins and teeth. The name is given in allusion to the very unusual colouring of the petals and lip, the latter being in reality a modified petal.

4. **Megaclinium Clarkei**, *Rolfe, n. sp.* Rhizoma validum, repens. Pseudobulbi 2 poll. distantes, late oblongi, acute tetragoni, 1 poll. longi, ¾ poll. lati, diphylli. Folia oblonga, obtusa, 2½–2¾ poll. longa, ¾–1 poll. lata. Scapus 6½ poll. longus. Rhachis falcato-ensiformis, obscure crenulata, circa 4 poll. longa, 4 lin. lata. Bracteæ triangulares, acutæ, reflexæ, 1½ lin. longæ. Sepalum posticum subulato-lineare, subacutum, scaberulum, 4 lin. longum. Sepala lateralia falcato-ovata, acuminata, breviora. Petala falcato-linearia, obtusa, 2 lin. longa. Labellum recurvum, basi ovatum, subintegrum, apice lineare, obtusum. Columna brevis, apice quadridentata.

Sent to Kew for determination in May of the present year, by Major Trevor Clarke, of Welton Place, Daventry, with the information that it is a native of West Africa. It is allied to *M. oxypterum*, Lindl., but has more acutely-angled pseudobulbs, and more distant flowers, which present various structural differences. The rhachis is light green along the centre with numerous purple-brown spots, and almost with the latter colour near the margins. The sepals are light green below, spotted with blackish-purple, wholly blackish-purple above; the petals maroon-purple; the lip whitish-green, densely spotted with blackish-purple; and the column of the latter colour with a light green disc near base.

5. **Megaclinium leucorhachis**, *Rolfe, n. sp.*—Rhizoma validum, repens. Pseudobulbi ovoideo-oblongi, acute tetragoni, 2½ poll. longi, 1¼ poll. lati, monophylli. Folia lineari-oblonga, obtusa, 6–7 poll. longa, 1 poll. lata. Scapus erectus, 6–7 poll. longus. Rhachis falcato-ensiformis, obscure crenulata, circa 3 poll. longa, 4 lin. lata, albidula. Bracteæ ovatæ, obtusæ, reflexæ, 2½ lin. longæ. Flores lutei, velutini. Sepalum posticum subulato-lineare, acutum, 3½ lin. longum. Sepala lateralia semi-ovata, falcata, acuminata, duplo breviora. Petala falcata, linearia, acuta, 2½ lin. longa. Labellum recurvum, basi latum, fimbriatum, apice linear-oblongum, obtusum. Columna brevis, apice breviter quadridentata.

A most distinct species, sent to Kew for determination by Sir Trevor Lawrence, Bart., M.P., of Burford Lodge, Dorking, in May 1890. Nothing is recorded of its habitat, but no doubt it is a native of some part of Africa. The rhachis is nearly white, with a very faint tinge of yellowish green, and as in this feature it presents so strong a contrast with every other known species the character is commemorated in its

name. The flowers are deep yellow, and the bracts brownish. It appears to be more nearly allied to *M. oxypterum*, Lindl., than any other.

6. **Pholidota repens**, *Rolfe*, *n. sp.*—Rhizoma repens, articulatum, elongatum, subcylindricum, 1½–5¼ poll. longum. Folia oblanceolata, petiolata, 3–4 poll. longa, ¾–1 poll. lata; petiolus ½ poll. longus. Scapus brevis, arcuatus; racemus circa 12-florus, recurvus, flexuosus. Bracteæ suborbiculares, obtusæ, 6 lin. longæ. Pedicelli 3 lin. longi. Sepalum posticum late ellipticum, obtusum, concavum, 3½ lin. longum. Sepala lateralia paulio angustiora, læviter carinata. Petala elliptico-oblonga, obtusa, plana, 1½ lin. lata. Labellum cymbiforme, basi nervis 5 crassis basi lamellatis, apice biauriculatum, reflexum, auriculis suborbicularibus. Columna oblonga, apice breviter quadridentata; rostellum rostratum, acuminatum.

Sent to Kew for determination by Mr. J. O'Brien, of Harrow-on-the-Hill, in June 1890, and again during the present year. It is a native of the hills of India, but the precise locality cannot be ascertained. The prostrate stems creep among the moss, and produce short racemes of light flesh-pink flowers, the disc of the front lobe and apex of the side ones being yellow. There are five thickened plates in the hollowed base of the lip, with an additional very short one on either side. It is nearly allied to *P. Griffithii*, Hook. f., of which it may ultimately prove to be an unusually procumbent variety with differently coloured flowers.

7. **Epidendrum mooreanum**, *Rolfe*, *n. sp.*—Folia linearia, obtusa, 1 ped. longa, 9–10 lin. lata. Panicula parce ramosa, laxa, ramis aspero-verrucosis. Bracteæ reflexæ, rigidæ, late ovatæ, subobtusæ, 1 lin. longæ. Ovarium pedicellatum aspero-verrucosum, ¾–1 poll. longum. Sepala lanceolato-linearia, subacuta, 7 lin. longa, patentia v. reflexa. Petala oblanceolata, subobtusa, subæqualia. Labellum profunde trilobum, 5 lin. longum; lacinia mediana late elliptica, obtusa, undulata; laciniis lateralibus multo brevioribus subspathulatis; disco medio bilamellato, basi quinquecarinato. Columna clavata, quadridentata.

A species of the section *Encyclium*, belonging to Lindley's group *Hymenochila obtusa aspera*, allied to *E. stellata*, Lindl., but readily distinguished by the unthickened veins of the front lobe of the lip, by the colour and other characters. It was first sent to Kew by Mr. F. W. Moore, Curator of the Royal Botanic Garden, Glasnevin (after whom it is named), in May 1889, and afterwards by Mr. W. Bull, of Chelsea, Messrs. Hugh Low & Co., of Clapton, and by Sir Trevor Lawrence, Bart., M.P., of Burford Lodge, Dorking. A search through the 200 or more species described since the publication of Lindley's *Folia Orchidacea* has not resulted in the discovery of any description which applies to the present species. The segments are pale green with a few dusky markings, and the lip deep purple, the front lobe broadly, and the side ones narrowly, margined with very light green. The flowers are deliciously fragrant. Messrs. Low state that it is a native of Costa Rica.

8. **Polystachya bulbophylloides**, *Rolfe*, *n. sp.* — Planta minuta, habitu Bulbophylli. Rhizoma gracile, repens. Pseudobulbi 6 lin. distantes, ovoideo-globosi, 3 lin. longi, diphylli (an semper?). Folia elliptica, breviter bidentata, subcarnosa, 4 lin. longa, 2 lin. lata. Scapi ad latera pseudobulborum erecti, graciles, 1¾ poll. longi; racemi circa 5-flori. Bracteæ ovato-orbiculares, minute mucronulatæ, subcarinatæ, 1¼ lin. longæ. Flores subsessiles, carnosi, 3 lin. longi. Sepalum posticum ovatum, subacutum; sepala lateralia obliqua, paullo latiora. Petala ad tuberculum minutissimum reducta. Labellum obscure

trilobum, elliptico-oblongum ; laciniis lateralibus parvis obtuse rotundis, lacinia mediana apice arcte recurva obtusa, disco lævo. Columna brevis, dentibus minutis.

A minute and very anomalous little species, native of the West Coast of Africa, sent to Kew for determination by Mr. J. O'Brien, of Harrow-on-the-Hill, during July of the present year. It is precisely like a small Bulbophyllum in habit, having rigid creeping rhizomes on which are borne small ovoid pseudobulbs at intervals of half an inch distant, with a pair of small fleshy coriaceous leaves, and a lateral scape, quite unlike any *Polystachya* in the Herbarium. The flowers, however, agree in structure with that genus, except that the petals are reduced to a minute fleshy tubercle,—another anomalous character, but one which is insufficient to exclude it from the genus. The flowers are white, except a large orange blotch at base of lip, a similarly coloured tubercle at extreme apex, and the stigma, clinandrium, and teeth of the column all margined with light purple.

9. **Renanthera imschootiana**, *Rolfe*, *n. sp.*—Folia lineari-oblonga, breviter biloba, 4 poll. longa, 9 lin. lata. Pedunculus axillaris, 1 ped. longus, racemus circa 8-florus. Bracteæ semiorbiculares, 1 lin. longæ. Pedicelli 1 poll. longi. Sepalum posticum oblanceolato-subspathulatum, obtusum, subconcavum, 9 lin. longum ; sepala lateralia unguiculata, oblique elliptico-ovata, obtusa, undulata, 1 poll. longa, 8 lin. lata, unguis 4 lin. lata. Petala subspathulato-linearia, obtusa, 6 lin. longa. Labellum 3 lin. longum, trilobum ; lacinia antica recurva, ovato-orbicularis, obtusa, apice concava ; laciniæ laterales erectæ, triangulares, obtusæ, basi breviter auriculatæ ; calcar conico-saccatum ; discus septemtuberculatus. Columna brevis, truncata, subteres, alis obsoletis.

A showy species, allied to *R. coccinea*, Lour., and *R. Storiei*, Rchb. f., sent to Kew by M. A. Van Imschoot, of Gand, Belgium, during July of the present year, with the information that it was imported by Messrs. F. Sander & Co., of St. Albans, probably with *Aerides Godefroyæ*, as it was received with that plant. The colours are brilliant ; dorsal sepal reddish-buff ; petals buff-yellow, with small red spots on the lower half and larger ones near apex ; lateral sepals reddish vermillion ; lip light yellow, with a pair of crimson spots near base ; the side lobes and small basal auricles reddish-crimson ; front half of central one barred with the same colour, and some orange about the middle of the crest. This organ is very complex, and consists of a pair of contiguous parallel plates in front of the mouth of the spur, then a pair of arcuate crenulate ones, diverging upwards, and finally three erect tubercles at the base of the front lobe of the lip. It is readily distinguished from *R. coccinea* by the shorter segments, the broader lateral sepals, and different details of the lip. *R. Storiei*, according to the description, differs in numerous particulars, and, like *R. coccinea*, its flowers are borne in branching panicles.

10. **Pelexia olivacea**, *Rolfe*, *n. sp.*—Radices crassi, fasciculati. Folia radicalia longe petiolata ; limbus subcordato-ovatus, obtusus, 3–4½ poll. longus, 1½–2¼ poll. latus ; petiolus 3–6 poll. longus. Scapus ¾–1 ped. altus, basi squamis vaginatus, apice pubescens. Racemus 3–4 poll. longus, multiflorus. Bracteæ lineares, acuminatæ, pubescentes, 8–12 lin. longæ. Ovarium pubescens. Sepala pubescentia ; lateralia linearia, acuta, 5 lin. longa, basi in appendicem calcariformem 5 lin. longam producta, ovario fere omnino connata ; sepalum posticum lanceolato-oblongum, obtusum, 5 lin. longum. Petala membranacea subobliqua, subspathulata, acuta. Labelli limbus late ovatus, obtusus,

reflexus, fere 2 lin. latus. Columna 4 lin. longa, rostellum subulato-aciculare, 1 lin. longum.

This species is a native of some part of the Andes, whence it was sent to Messrs. Charlesworth, Shuttleworth, & Co., of Heaton, Bradford, by Mr. E. Klaboch. A plant was presented to Kew in April 1890, where it flowered about a year later. The leaves are dull olive-green in colour, with a broad irregular silvery band on either side, between the mid-rib and margin. The scape, ovary, and sepals are also olive green, and pubescent; the petals pellucid white; the limb of the lip, also the tube formed by the union of the unguis of the lip with the column, is white, the mouth of the same being light yellow. There is a specimen in Dr. Lindley's *Herbarium*, collected by Fendler, near Tovar in Venezuela, which so closely resembles the present species that it will probably prove to be a form of the same. A note describes the leaves as dark green. The structure of the flowers in this genus is very remarkable, and not always correctly described from dried specimens. The claw of the lip is united to the sides of the column, forming a tube, which is produced behind inside the spur of the lateral sepals almost to the latter's free apex, and there terminates as a pair of free linear processes. This tube contains much nectar, and the pollinia are situated just at its apex.

CCVIII.—ARTIFICIAL COFFEE BEANS.

The manufacture of artificial coffee beans has apparently assumed some importance in the United States. Specimens of these spurious beans have been obligingly communicated to the Museums of Economic Botany at Kew by Dr. Brown Goode, Assistant Secretary of the Smithsonian Institution at Washington D.C. The idea of preparing artificial coffee beans for the purpose of mixing with genuine beans for sale in the unground state is, however, not entirely new. In April 1860, the late Dr. Lindley, F.R.S., presented to the Kew Museums some very carefully modelled beans, believed to be made from finely powdered chicory. There is no indication as to the country whence these were obtained. The American beans are supposed to be composed of rye flower, glucose, and water. They are prepared to resemble in size and colour a moderately good sample of roasted coffee beans. By the introduction of a few genuine beans they are made to possess the aroma of true coffee. The modelling is sufficiently good to deceive the ordinary public, but if the beans are at all critically examined it is noticed that the groove on the flat surface is broad and shallow and it does not extend into the heart of the bean by a narrow long slit as in the natural product. Also there is no trace of the silver skin at the mouth of the slit. In other respects the artificial beans very closely resemble true coffee. They are made to vary slightly in size and colour, some are frayed or broken at the edge, and the general characteristics are those of a fair coffee with small and somewhat broken beans.

The introduction of spurious coffee beans as an article of commerce in the United States is thus described in an article from the *New York World*, reproduced in the *Board of Trade Journal*, 1890, p. 448:—

"The average bulk of the genuine coffee imported into the United States is 8,000,000 bags, or 130,000,000 pounds per annum. Experts

estimate that fully 20 per cent. of the coffee sold to consumers is bogus, which raises the consumption to 216,000,000 pounds. Taking 30 cents per pound as the average retail price, the people of America pay 65,000,000 dollars every year for this one article of food, of which 13,000,000 dollars is paid for roasted and ground beans, peas, rye, or a manufactured article in no way resembling the Brazilian berry. To this must be added the production and sale of what are called "coffee substitutes." So extensive is this business that it is quite safe to say that consumers pay 12,000,000 dollars for what they believe to be cheap coffee. This raises the total expenditure to 77,000,000 dollars, and it represents a sale of 276,000,000 pounds, for the "substitute coffee" usually sells at 20 cents per pound. It will thus be seen that 96,000,000 pounds of bogus coffee are sold in the United States every year, and some estimates place it at 120,000,000 pounds. Taking the lowest figures, 25,000,000 dollars are received for substances which can be profitably placed on the market at six cents a pound. The manufacturers, therefore, receive 6,000,000 dollars for their goods, while retailers gain a profit of 18,000,000 dollars. There are two kinds of bogus coffee, an imitation bean and the ground article. The bean is the most difficult to produce, and it is only recently that actual success in this direction has been attained. The bogus bean must not only look like the genuine berry when raw, but it should be capable of taking a proper colour when roasted. A very good specimen is now manufactured in Philadelphia and Trenton, being composed of rye flour, glucose, and water. The soft paste is then moulded and carefully dried. To the eye of an expert, the presence of this imitation is easy of detection, and it cannot be used to any great extent among wholesalers. But when coffee goes to the retailer adulteration begins. Sometimes the retailer is deceived, but nine times out of ten he is the one who introduces adulteration. The ground article is very easily produced for a proper colour and infuse an aroma by strong decoctions of coffee essence."

"When mixed with real coffee even the expert eye and tongue may be deceived, while to the ordinary consumer it seems to be the genuine product. Bogus coffee beans have only a slight resemblance to the natural berry, for though they possess proper form the cicatrice on the inner face is too smooth. Then, again, the grey colour of the raw bean is not quite up to the mark, but when these manufactured beans are roasted with 5 per cent. of genuine coffee they find a ready sale. These bogus beans can be made at a cost of 30 dollars per 1,000 pounds, and when mixed with 50 pounds of pure coffee the whole 1,000 pounds cost 37·50 dollars, or $3\frac{3}{4}$ cents per pound, so that a profit of nearly 100 per cent. is the result. There are any number of "coffee substitutes," the Hillis variety being the most successful. This company is already manufacturing 10,000 pounds per week, it being sold by the barrel to retailers in nearly all of the New England, Middle, and Western States. The profits of this concern are supposed to be 300 dollars per day, and its operations have reached such a scale that the stockholders were recently offered nearly 1,000,000 dollars for their secret and business, but it was declined. No one accustomed to coffee drinking would imagine that a decoction of this stuff was like either Mocha or Rio, but when mixed with four times its bulk of genuine coffee only an expert could detect the imposition. The manufacturers of these "coffee substitutes" claim that they are not violating the law of adulteration of food products because they do not sell their goods as coffee, but simply as a substitute. While this may be true it does not apply to the retailer, who mixes the bogus stuff with good coffee, and sells the whole as the

genuine article. Though manufactories may be beyond the penalties of the adulteration law they should be suppressed, for without them coffee adulteration by retailers would be impossible. When it is remembered that American people are compelled to pay 25,000,000 dollars for ingredients that can be manufactured for one-fifth the sum received by coffee growers, the necessity for the suppression of this nefarious trade is apparent. Oleomargarine cannot be sold as butter, neither should "coffee substitutes" be made to masquerade under the name of Java, Mocha, or Rio."

SMITHSONIAN INSTITUTION to ROYAL GARDENS, KEW.

United States National Museum, Washington,
March 30, 1891.

DEAR MR. THISELTON DYER,

I TAKE pleasure in informing you that I have succeeded in obtaining samples of bogus coffee for which you expressed a desire in your letter of January 17. I have sent them forward to you through the Smithsonian Bureau of International Exchanges.

Wesley and Son will notify you of their receipt, and transmit them to you.

I am, &c.
(Signed) G. BROWN GOODE.

W. T. Thiselton Dyer, Esq., C.M.G., F.R.S.,
Royal Gardens, Kew.

The production of artificial coffee has also received some attention in Germany. According to the *Magdeburgische Zeitung* (quoted in the *Board of Trade Journal*, March, 1891, p. 301), an Imperial decree has been issued in Germany forbidding the manufacture and sale of machines for producing artificial coffee beans, which certain German newspapers have of late been extensively advertising, and which have attracted the notice of the Government, as contravening the food law. These beans are not intended to supply by themselves a beverage which, from similarity of taste or effect, might form a substitute for coffee, and cannot therefore be looked upon as such, but are intended to be used in trade for mixing with the genuine article. It has been a question of directing much energy towards the discovery of some cheap compound with the undeniable object of deceiving the public. In the meantime the sale of such compound is not to be prohibited, provided it be known by such a name as will exclude all possibility of deception.

It will be noticed, however, from the following despatch received at the Foreign Office from Her Majesty's Chargé d'Affaires at Berlin the production of artificial coffee beans in Germany has been prohibited by law, and no samples have so far been obtainable from that country.

The Hon. P. H. LE POER TRENCH to FOREIGN OFFICE.

MY LORD, Berlin, June 30, 1891.

WITH reference to your Lordship's despatch, No. 32 of this series, of the 8th of April last, I have the honour to report that I have made inquiries in this city, as well as in other places throughout

Germany, but, so far, have not succeeded in finding any of the artificial coffee beans the authorities of Kew Gardens are anxious to obtain for the museum attached to the gardens.

The Under Secretary of State for the Department of the Interior informs me that it is quite impossible to get any of these beans, as all the machines for making them have been confiscated.

I have, &c.

(Signed) P. Le Poer Trench.

The Marquis of Salisbury, K.G.,
&c. &c. &c.

CCIX.—KANAFF OR DECCAN HEMP.

(*Hibiscus cannabinus*, L.).

Recently an announcement has been made of the discovery of a new textile plant on the shores of the Caspian. The plant known as Kanaff by the natives is said to yield a soft elastic and silky fibre, capable of being readily bleached or dyed in every shade of colour. From a report which appeared in a Tiflis journal, it is supposed that Kanaff fibre, from its abundance and consequent cheapness, and its extraordinary durability, will successfully compete with any other textile for sacking, ropes, and pack-thread. The fibre is said to have a greater resistance than hemp, and its specific gravity is less.

The chief source of information respecting the plant yielding this fibre is contained in an article entitled *Note sur le Sunn, le Yucca, et quelques autres plantes textiles*, by MM. Jules Grisard et Max. Vanden-Berghe, in the *Revue des Sciences Naturelles appliquées*, 1890, pp. 992–993. According to these authors, Kanaff or Kanap was at one time supposed to be *Apocynum sibiricum*. It is however now identified as *Hibiscus cannabinus*, L., a well-known fibre plant in India, also found in a cultivated state in Persia, and other places westward. In a note in Boissier's *Flora Orientalis*, vol. i., p. 840, it is stated that *Hibiscus cannabinus*, L., is cultivated in the province of Ghilan in Persia, and that cords and ropes are prepared from its fibre. Specimens of Kanaff fibre have recently been received at Kew, but no authentic specimens of the plant producing it have so far been seen. There is every probability, however, that the plant is one of the many varieties of *Hibiscus cannabinus*, and the utilisation of its fibre on the shores of the Caspian is a fact of some interest. The information so far furnished is as follows:—

"The French *Revue des Colonies* reports the discovery of a new textile on the shores of the Caspian. This plant, called Kanaff by the natives, grows in the summer, and attains a height of 10 feet, with a diameter varying from two to three centimetres. By careful cultivation and manipulation, M. O. Blakenbourg, a chemist and engineer, who has made a special study of Kanaff, has obtained an admirable textile matter; it is soft, elastic, and silky, gives a thread, which is very tough, and can be chemically bleached without losing its value. The stuffs manufactured out of Kanaff, and then bleached, can be successfully dyed in every shade of colour, and would compete with any of the furnishing materials now in use. But it is particularly for making sacks, tarpaulin, ropes, &c., that this new textile, from its cheapness and

its extraordinary resisting power, might defy all competition. Its specific weight is much less, but its resistance much greater than those of hemp. Thus, a cord of 8·25 mm. diameter, woven with the hand out of three threads of Kanaff, requires a weight of 180 kilogrammes to break it. A cord half an inch thick, manufactured at Moscow, did not break till the weight of 625 kilogrammes was reached. When it is considered that Russia annually consumes more than 150,000,000 of sacks, a third of which is imported, it may easily be seen that the appearance of this new textile on the Russian market is an event of no slight importance." (*Board of Trade Journal.*)

The following more recent information respecting Kanaff has been communicated to this establishment by the Foreign Office :—

(Copy.)

FOREIGN OFFICE to ROYAL GARDENS, KEW.

SIR, Foreign Office, July 6, 1891.

I AM directed by the Secretary of State for Foreign Affairs to transmit to you, to be laid before the Director of the Royal Gardens the accompanying despatch, reporting on the cultivation of cotton in the Caspian district, and transmitting some fibre of a newly discovered plant.

I am, &c.
(Signed) JAMES FERGUSSON.

The Assistant Director,
Royal Gardens, Kew.

(Extract.)

Mr. Vice-Consul MURRAY to FOREIGN OFFICE.

MY LORD, Batoum, June 24, 1891.

* * * * *

A newly discovered plant has been exciting great interest amongst Russian traders, as it is hoped that it will prove a strong rival to the Jute plant.

It is known as the Kanaff (Kanabe or Kanaspe) and is a textile plant found in large quantities on the Persian shores of the Caspian sea, all the production and sale being in the hands of Persians who do not know what value to put on it and therefore ask absurd prices, sometimes too high and sometimes too low.

The quality of the flax, it appears, is excellent and it is only fair to suppose that this will develope into a large industry when the prices settle.

At the present time the price is about the same as that of Indian jute, which, when the high cost of local transport is added, practically puts it out of the market.

The present price is from $1\frac{2}{3}d.$ to $2d.$ per pound.

I have the honour to enclose a sample of the fibre of this plant.

I have, &c.
(Signed) ALEX. MURRAY,
Lieutenant and Acting Consul.

The Right Hon.
The Marquis of Salisbury, K.G.,
&c. &c. &c.

A full account of Deccan or Ambasi hemp obtained in India from *Hibiscus cannabinus* is given in the *Dictionary of the Economic*

Products of India, vol. iv., pp. 231–236. The plant is a herbaceous shrub apparently wild in some parts east of the Northern Ghâts but largely cultivated for its fibre throughout India. The produce is chiefly used by the agricultural classes locally. Dr. Watt, C.I.E., states that the fibre is soft, white, and silky and eminently suitable for the coarser textile purposes to which jute is applied. Were a demand to be created for this fibre as distinct from that of Sunn-hemp or other fibres the cultivation of the plant might be indefinitely extended, and with profit to many needy cultivators who are unable to produce either jute or cotton. The leaves of *Hibiscus cannabinus* are used as a pot herb while the seeds are sometimes exported from India to England as an oil-seed.

CCX.—INDIGENOUS PLANTS OF YORUBA-LAND.

Mr. Alvan Millson, Assistant Colonial Secretary of Lagos, West Africa, and lately a special commissioner to the interior of the native territory of Yoruba-land has prepared several interesting reports on the results of his mission. An account of the soil and of the native agricultural industries of Yoruba was printed in the *Kew Bulletin* for October 1890, p. 238, and a list of Yoruba timbers with notes respecting the most interesting, was given in the *Kew Bulletin* for February 1891, p. 41. The botanical collections made by Mr. Millson in the Yoruba country, were transmitted to Kew and carefully examined. Although the collections did not contain any striking novelties, there appear to be several undescribed species, and better material than Kew previously possessed, of a number of interesting plants. Specially valuable are seed-vessels of 100 (*Bombax*) and of 85 (*Triaspis*); *Vitis mossambicensis* (53) is new from Western Africa; 4 is probably a new species of the curious genus *Brachystegia*; 20 (*Macrosphyra*), and 97 (*Psilanthus*) were slenderly represented in the Kew Herbarium; 103 (*Diospyros*) is probably undescribed, though there are specimens of the same species collected by Burton and H. H. Johnston; 72 (*Phygelius?*) is an interesting plant from this region; 139, of which flowers are desired, is perhaps a new genus of Euphorbiaceæ and near *Microdesmis* (15); 42 and 135 are ♀ and ♂ respectively of the little known *Lepidoturus laxiflorus*, of which the fruit was till now unknown; 106 is an Urticaceous plant which cannot be more nearly determined without better specimens; finally, 89 is an undescribed genus of petaloid monocotyledons, imperfect specimens of which were collected by G. Mann, ripe fruit (seed-vessels) of this is much wanted.

COLONIAL OFFICE to ROYAL GARDENS, KEW.

SIR, Downing Street, 13 August 1890.

I AM directed by Lord Knutsford to transmit to you a copy of a despatch from the Governor of Lagos with its enclosures, including a schedule, which is sent in original, of a botanical collection which has been made by Mr. Alvan Millson during his late expedition into the interior. The Crown Agents will be requested to send the specimens to you, if they have not already done so.

I am, &c.

The Director, (Signed) R. H. MEADE.
Royal Gardens, Kew.

Sir Alfred Moloney to Colonial Office.

My Lord, Government House, Lagos, 25th June 1890.

I have the honour to transmit for your Lordship's information a vocabulary of an interesting botanical collection comprising 149 herbarium specimens made by Mr. Alvan Millson on the occasion of his recent visit to the interior of Yoruba. The habitat may be viewed as situate between 6° 40′ and 8° north latitude and 3° 40′–5° east longitude.

2. Your Lordship will, I am sure, appreciate this further proof of Mr. Millson's zeal, and observe with satisfaction that his collection contains specimens of several economic plants yielding gums, fibres, and dyes in extensive daily use by the people, and doubtless capable in time of considerable commercial development.

3. The Yoruba country offers, as has been repeatedly pointed out, a field ready for enterprise and rich in the products named, but it requires more freedom of inter-communication and the intelligent activity, interest, and support of the commercial community brought to bear on its development.

4. The Government have always been alive to the importance of advertising the capabilities of the country with small encouragements so far as regards practical result. For instance, attention has been often called to the large quantity of Ogea gum (*Daniellia*, sp.) in the country. At last, even at the low local value of 2½*d.* per lb., it would seem to be established as a growing article of export which began with 1885; the output of the Colony has been since as follows:—

1886	-	1,430 lbs.
1887	-	1,841 „
1888	-	48,905 „
1889	-	110,766 „

5. The specimen of the Yoruba edible fig which is described as of "fair flavour" is most interesting; its cultivation in the botanic centre has already engaged the attention of the Government.

6. The botanical collection now forwarded may be of local rather than of new scientific interest.

7. May I ask your Lordship to be good enough to invite the Director of the Royal Gardens to have the collection named and to accept it from this Government for the Kew Herbarium.

8. The column has been left in the vocabulary transmitted which I would beg to be returned for the insertion of the scientific name in each case.

I have, &c.

(Signed) Alfred Moloney,

The Right Hon. Lord Knutsford, G.C.M.G., Governor.

No.	Yoruba Name.	Meaning of Yoruba Name.	Place found.	Description.	Medicinal or other Uses.	Scientific Name.
1	Adabi		Ikirun, W. Africa	Shrub		Clerodendron splendens, Don.
2	Lagba Ommode	"Whip-child," so called from whip-like strings of corolla.	„ „	„ (flower and fruit)		Strophanthus sarmentosus, DC. and Wrightia parviflora, Bth. (mixed).
3			Esa Egure, Ijesha, W. Africa.	„ (white flower)		Ixoreæ?
4	Akko Lodo	"Met with by the river."	Ikirun, W. Africa	Tree, by rivers in their upper courses. Young leaves brilliant red. Gum exudes from wounds on bark. Fruit not found.	Use of the gum of this Acacia apparently not known to the natives.	Brachystegia n. sp.?
5			Oshogbo „	Plant		Cleome spinosa, L.?
6	Erusheshon		Ikirun „	Bush		Alafia sp.?
7	Kan-kan		„ „	Shrub		Randia macrantha, DC.
8	Ji-wi-ni		„ „	Bush		Phyllanthus (Anisonema) floribunda, Baill.
9	Agbari Ettu	"Guinea-fowl's head"	Oshogbo „	Creeper	Used as rope for tying rafters, &c. in house building. Used also medicinally, for what disease not ascertained.	Alafia sp.?
10	Buje (No. 1)		Ikirun „	Shrub (large trumpet-shaped white flowers, *see* No. 18).	Fruit used, &c. for blue tattooing on faces by all interior tribes of this part of West Africa.	Randia, near R. maculata.
11	Shawe-re-kpekpe		„ „	Plant		Cyathula geminata, Moq.
12	Je-in-joko or Joko-je.	"Let me sit quiet"	Ikirun, and Iwo, W. Africa.	Creeper, white clusters with bright red seeds, very handsome.	Suppression of menses, &c.	Cissampelos Pareira, L. var. owariensis.

No.	Yoruba Name.	Meaning of Yoruba Name.	Place found.	Description.	Medicinal or other Uses.	Scientific Name.
13	- - -	- - - -	Ikirun, and Oshogbo, W. Africa.	Tree - - -	- - - - - -	Deinbollia pinnata, Schum. et Thonn?
14	Awkpawtaw -	- - - -	Ikirun, W. Africa -	„ - - -	Native edible fig, fair flavour -	Ficus guineensis, Sch. Th.?
15	Ărin-igo - -	"Walking on bottles"	„ „ -	Bush - - -	- - - - - -	Microdesmis puberula, Hk. fil.
16	- - -	- - - -	Oshogbo „ -	„ - - -	- - - - - -	Motandra guineensis, A. DC.
17	Akawn-Ekkun -	"Tongue (of) leopard"	Ikirun „ -	Plant - - -	Medicine for women and children, effect not ascertained.	Acanthus montanus, T. And., var.?
18	Buje (No. 2) -	- - - -	Ikirun and Oshogbo, W. Africa.	Shrub - - -	See No. 10 - - - -	Randia maculata, DC.
19	- - -	- - - -	Oke-Ibodi, W. Africa -	Plant - - -	- - - - - -	Dracæna phrynoides, Hook.
20	Ikuku-Ekkun -	"Leopard's monkey bread" (Monkey bread = Baobab).	Ikirun „ -	Shrub, white flowers, heavily and sweetly scented.	- - - - - -	Macrosphyra longistyla, Hk. f.
21	- - -	- - - -	- - - -	Lily - - - -	- - - - - -	Crinum giganteum, Andr.
22	Oburo - -	- - - -	- - - -	Plant - - -	Medicine for throat; given to patients when suffering from throat in measles or small-pox.	Amomum sp.?
23	- - -	- - - -	Ijebu, W. Africa -	Terrestrial orchid. Faint musky perfume; purple flowers, very handsome.	- - - - - -	Lissochilus arenarius, Lindl.
24	- - -	- - - -	Ikirun „ -	Terrestrial orchid. Purple flowers; no scent.	- - - - - -	Lissochilus nr. L. purpuratus, Ldl.
25	- - -	- - - -	„ „ -	Creeper - - -	- - - - - -	Asparagus, cf. A. falcatus.
26	- - -	- - - -	„ „ -	Bush, white flowers; no scent.	- - - - - -	{ Pavetta Baconia, Hiern. / Vernonia amygdalina, Del.

No.	Yoruba Name.	Meaning of Yoruba Name.	Place found.	Description.	Medicinal or other Uses.	Scientific Name.
27	Oshun-Shun		Ikirun, W. Africa	Tree, very hard wood	Decoction of bark used for rheumatism externally and internally. Fruit edible. Wood used for house-posts and walking sticks, resists ravages of termites.	Carpolobia lutea, Don.
28	Fe-ru		„ „	Shrub	Yellow dye from root; bark used for rope (Hausa-Kawaye).	Cochlospermum tinctorium, Rich.
29			„ „	Reed, in swamps	Tobacco-pipe stems made from hollow reed.	Olyra latifolia, L.
30			„ „	Bush		Combretum racemosum, Beauv.
31	Aso-fun-eye-je, or Akkaw-Ishin.	"Seeds for birds to eat," or "Male Ishin-tree." (Ishin is an edible seed similar to this.)	„ „	Tree		Ratonia, nr. R. zambesiaca.
32	Kaka-n'she-n'la	"Big kaka-n'she"	„ „	Creeper	Medicinal use not ascertained	Paullinia pinnata, L.
33			Ibadan „	Grass		Pennisetum Benthamii, Steud.
34			Ikirun „	Shrub, red flower, very handsome.	Tonic and febrifuge—decoction of leaves.	Cacoucia paniculata, Laws.
35	Agba-odo	"Sweep the water"	Oshogbo „	Small blue flower, bean-like fruit with velvety, silvery coating.	Used for killing fish—macerated in water and thrown into the river.	Tephrosia Vogelii, Hk. fil.
36			Ikirun „	Shrub		Millettia sp.
37	Ogiya (Ogea)		„ „	Tree	Gum used as powder for skin; scented.	Daniellia sp. ?
38			„ „	Plant		Wissadula rostrata, Pl. Acalypha sp.
39			„ „	„		Buchnera sp.

No.	Yoruba Name.	Meaning of Yoruba Name.	Place found.	Description.	Medicinal or other Uses.	Scientific Name.
39 bis.	- - -	- - - -	- - - -	- - - - -	- - - - - -	Cardiospermum barbicaule, Baker.
40	- - -	- - - -	Ikirun, W. Africa -	Plant - - -	- - - - - -	Justicia insularis, T. And. ?
41	- - -	- - - -	" " -	" - - -	- - - - - -	Ritchiea fragrans, R. Br.
42	- - -	- - - -	" " -	Shrub - - -	- - - - - -	Lepidoturus laxiflorus, Bth. ♀
43	- - -	- - - -	Oshogbo " -	Yellow Convolvulus -	- - - - - -	Ipomœa acanthocarpum, Chy. ?
44	- - -	- - - -	Oyo " -	Creeper - - -	- - - - - -	Amaralia bignoniæflora, Welw. ?
45	Eruwaw -	"Bitter as far as the navel."	Ikirun " -	Tree - - - -	"Brimstone wood." Used for canoes, planks, posts, &c. Resists ravages of termites. Used medicinally in cases of colic, fever, worms, and childbirth.	Morinda citrifolia, L.
46	- - -	- - - -	" " -	Creeper - - -	- - - - - -	Ipomœa sp.
47	- - -	- - - -	" " -	Shrub, white flowers -	- - - - - -	Apocynaceæ ?
48	- -	- - - -	" " -	Shrub - - -	- - - - - -	? Rutidea sp.
49	Ibishere -	- - - -	" " -	Tree - - - -	Leaves used when young for soup ("Egba kpa ommaw nidi obbe ibishere," proverb meaning "The Egba kills his child on account of Ibishere soup").	Myrianthus arboreus, P. de B.
50	- - -	- - - -	Ijebu Ode " -	" - - - -	Gum used as cosmetic and as incense for driving away evil spirits. (Timaneh language, "bongbo.")	? Albizzia.
51	- - -	- - - -	Esa Egure " -	" - - - -	- - - - - -	Albizzia fastigiata, Oliv.
52	- - -	- - - -	- - - -	Miscellaneous - -	- - - - - -	Gossypium barbadense, L. Sorghum vulgare, Pers. Coffea sp. ? Acanthus montanus, T. And. ?

No.	Yoruba Name.	Meaning of Yoruba Name.	Place found.	Description.	Medicinal or other Uses.	Scientific Name.
53	Efuru	-	Oshogbo, W. Africa	Native grape	Fruit small, black, acid and astringent.	Vitis mossambicensis, Kl.?
54	Kere Odan	"Wild 'Kere'"	Iwo-Oyo „	Plant	-	Chrysanthellum procumbens, Pers.
55	Edaw	-	Oshogbo „	„	-	Sphenoclea zeylanica, Gærtn.
56	Ewuro	"Bitter"	Ikirun „	„	Febrifuge and tonic, anthelmintic; also used as condiment.	—
57	Arojoku	-	Oshogbo „	„	-	Eclipta alba, Hassk.
58	Oboboroboro	"Very smooth"	Ikirun „	„	-	Alsodeia dentata, P. de B.
59	Ashawyun	-	„ „	„	-	Paulowilhelmia speciosa, Hockst.
60	-	-	Oshogbo „	Water plant	-	—
61	Agbo ommode	"Child's decoction"	Ikirun „	Shrub	Medicine for children, laxative	Tabernæmontana Barteri, Hk, fil.
62	Akkaw-ishe-kpe-agbwe.	"Male Ishe-kpe-agbwe."	„ „	„	„ „ „	„ „ „
63	Ishe-dun	"Work is sweet"	Oshogbo „	Creeper	-	Clerodendron sp.
64	Ake-iri	-	„ „	Plant	Bark used to make ropes	Urena lobata, L.
65	Toto-odó	"Water odo." The "odo" leaf is used for wrapping up food	Ilesha „	„	-	Hæmanthus abyssinicus, Herb.?
66	Ari-ehin-k'osun	"I appear brighter than those who rub themselves with cam-wood."	„ „	„	-	Hæmanthus multiflorus, Martyn?
67	Odo-ommode	-	„ „	Creeper; red elongated sweet berries.	-	Mussænda elegans, Sch. and T.
68	Buje Arigbo	"Old Woman's Buje" (*see* Nos. 10 and 18).	Ikirun „	Creeper	-	Canthium hispidum, Hiern.?

No.	Yoruba Name.	Meaning of Yoruba Name.	Place found.	Description.	Medicinal or other Uses.	Scientific Name.
69	Oshekpotufunfun	"That which gives out froth like soap when bruised."	Esa Egure, W. Africa	Plant	Used as soap, and for gonorrhea, internal and external application.	Sida carpinifolia, L.
70	- - - -	- - - -	Ikirun „	„ blue flowers	- - - - - -	Brillantaisia owariensis, P. de B.
71	Lobiri	- - - -	Oshogbo „	„	- - - - - -	Asystasia gangetica, T. And. (A. coromandeliana, Nees.)
72	Ittaw Awkpere	- - - -	Oyo „	„	- - - - - -	Phygelius sp.?
73	Kere	"Rattling." (The seeds rattle when shaken.)	Oshogbo „	Shrub	Decoction of leaves and seeds used for febrifuge. Decoction of seeds and roots for inflamed throat.	Cassia occidentalis, L.
74	Iyawa	- - - -	Ilesha „	Plant	- - - - - -	Mikania scandens, Willd.
75	Ododo oko	"Red 'flower' of the field."	Ikirun „	Climber	- - - - - -	Ipomœa involucrata, Beauv.
76	Ejirin Awdawu	"Prairie 'Ejirin'"	Oyo „	- -	- - - - - -	Ipomœa (Pharbitis), Nil.
77	Da ogun duro	"That which makes war stop" (barricade).	„ „	Plant	Medicinal use not ascertained	Tribulus terrestris, L.
78	Akkau Ejirin or Koropo.	"Male Ejirin"	Oshogbo „	Creeper	Laxative for children	Momordica cissoides, Pl.
79	Etikpon' la	"Lick lips"	„ „	„	Made into soup; used to assist menses.	Boerhaavia cf. B. diffusa.
80	Ajitana	"I awake to give light."	Ikirun „	Plant	- - - - - -	Celosia laxa, Schum. and Thon.
81	Ogbwe Akukaw	"Cock's comb"	Oshogbo „	„	- - - - - -	Heliotropium indicum, L.
82	Yun-yun	- - - -	Ikirun „	„	- - - - - -	Aspilia latifolia, O. and H.

No.	Yoruba Name.	Meaning of Yoruba Name.	Place found.	Description.	Medicinal or other Uses.	Scientific Name.
83	Ewuro odo	"Water bitter leaf"	Ikirun, W. Africa	Plant	Used as herb in soup	Sparganophorus Vaillantii, Gærtn.
84	Agbari Ettu	"Guinea fowl's head"	„ „	Shrub		Gomphia reticulata, Beauv.
85	Abebbe awdawu	"Praire Fan"	„ „	„		Triaspis nr. T. stipulata.
86	Ayorun	"I shew my head"	„ „	Terrestrial orchid, yellow		Lissochilus sp.
87	Akawn Ekkun	"Leopard's tongue"	Oshogbo „	Plant	Much used medicinally, but use not ascertained.	Argemone mexicana, L.
88			Esa Egure „	Shrub, white flowers	Laxative for children, decoction	Tabernæmontana nr. T. Barteri.
89			Ibadan, Ijebu road; W. Africa.	Bulb-like crocus; bright blue flowers.		——
90	Iran-aji-igbo		Oyo, W. Africa	Creeper		Gymnema sp.?
91	Aba-erode-Ife	"I go with all strangers to the land of Ife." (Ife is supposed to be the cradle of the human race.)	Oshogbo „	Plant		Desmodium gangeticum, DC.
92	Oforo		Oyo „			Hewittia bicolor, W. and A.
93	Awsawn-igbo	"Wild lime"	Ikirun „	Bush		Rutidea sp.?
94	Ashara		Oshogbo, Oke-Ibodi, W. Africa.	Plant		——
95	Godawgbaw-odo	"Watery river plant"	Ikirun, W. Africa	Plant; in swamps	Decoction used as laxative for children.	Ancilema beninense, Kunth.
96	Ikan-yanrin	"Small Ikan"	Oshogbo „	Plant	Fruit edible	Solanum sp.
97	Ya-ya		„ „	„		Marsdenia sp.?
98	Jaw-yun		„ „	Creeper, white flowers		Dæmia angolensis, Dene.

No.	Yoruba Name.	Meaning of Yoruba Name.	Place found.	Description.	Medicinal or other Uses.	Scientific Name.
99	Aw-waw	"Hand"	Oke-Ibodi, W. Africa	Shrub	Medicinal use not ascertained	Lankesteria elegans, T. And. (L. Barteri, Hook.)
100	Escho or Pompola		Oru „	Tree; brilliant red flowers	Called Pompola, when the natives speak of it as growing in the forest. Called Esho, when spoken of as a medicine, the belief being that the efficacy of the medicine would be destroyed were they to call it by its right name. Decoction of bark used to assist menstruation; powder made from the thorns mixed with oil used for "Craw-craw."	Bombax-buonopozense, Beauv.
101	Efo		Ikirun „	Shrub		Wrightia parviflora, Bth.
102			„ „	Plant		——
103	Olododo	"Crimson"	„ „	Shrub, dark crimson flowers, very handsome,		Diospyros sp.
104	Iya-wa		„ „	Bush		? Clerodendron sp. or Premna.
105	Akpe-ji		„ „	Plant		Dissotis irvingiana, Hk.
106	Ekkorraw		„ „	„		Urticaceæ.
107	Ika-igbo	"Fingers of the forest bush."	Ilesha „	Creeper		Cucurbitaceæ.
108	Akara Aje	"Witch Akara." Akara = beans cooked in palm oil.	Oshogbo „	Bush		? Tabernæmontana sp.
109	Akkaw-yun-yun	Male yun-yun	Ikirun „	Plant	Decoction for "craw-craw" externally. Decoction for fever internally.	Ageratum conyzoides, L.

No.	Yoruba Name.	Meaning of Yoruba Name.	Place found.	Description.	Medicinal or other Uses.	Scientific Name.
110	Ikan-igbo		Ikirun, W. Africa	Creeper	Medicinal use not ascertained	Sabicea calycina, Bth.
111	Ofo-odon	"The 'empty' or sterile plant of the prairie."	Esa Egure „	Plant		Hibiscus vitifolius, L.
112	Agbon-igbo		Ikirun „	Creeper		Combretum mucronatum, S.andT.
113	Dagba		„ „	„		Clerodendron volubile, P. de B.
114	Godawgbaw-odo	"Plant that grows in water."	„ „	Plant, in swamps		Commelina nudiflora, L. var. werneana, Hassk.
115	Adodo		„ „	Bush		Tabernæmontana sp.
116	Gboyin Gboyin, or Buje werre.	"Small Buje"	„ „	Shrub	Used for blue tattooing. (*See* Nos. 10 and 18.).	Tapiria?
117	Apo-iba	"Puzzle fever"	„ „	Plant	Febrifuge, also used for cough and sore eyes.	Dissotis plumosa, Bth.
118	Koro		„ „	Creeper		Ipomœa sessiliflora?
119	Aboro		„ „	Plant		Achyranthes argentea, Lam.
120	Akkaw-Ajaw-yun	"Male Ajaw-yun"	„ „	Creeper, light blue flowers		Phaseolus? perhaps P. lunatus.
121	Shauga		Esa Egure „			Oncoba spinosa, Forsk.
122	Ekuya		Oshogbo „	Plant	Leaves used in soup. Remedy for earache, leaves tied in another leaf and roasted, juice mixed with kernel oil, and squeezed into the ear.	Gynandropsis pentaphylla, DC.
123	Dan-gbawn-gbawn		Ikirun „	Bush		Pavetta Baconia, Hiern.
124	Oggau		„ „	Creeper		Combretum racemosum, Beauv.?
125				Plant		Urticaceæ.

No.	Yoruba Name.	Meaning of Yoruba Name.	Place found.	Description.	Medicinal or other Uses.	Scientific Name.
126	Otili	-	Ikirun, W. Africa	Plant	Native pea. Leaves used for sore throat.	Cajanus indicus, Spr.
127	Akpa-ogbwe, or Atakpara.	"I heal wounds" - "I fire with a sound like 'Akpara.'"	„ „	-	Powder used for staunching wounds under first name, and as a laxative in decoction. When the seeds are dried and put in water they explode with a popping sound.	Phaylopsis sp.
128	Akana-magbo	-	„ „	Plant	-	Smilax sp.
129	Karo, or Odun-dun odo.	"Water odun-dun"	Esa Egure „	„	-	Emilia sagittata, DC.
130	Ekoro	-	Ikirun „	Bush, very handsome, clusters of red fruit and white flowers out at same time.	Decoction of leaves used as a laxative.	Cnestis ferruginea, DC.
131	Ashere, or Re-re	-	„ „	Plant	-	Ammannia senegalensis, Lam.
132	Alake oko	"Prince of the field"	„ „	„	-	Justicia (Rungia Wakefieldi, S. Moore ?).
135	Ijan	-	-	Shrub	Leaves used to preserve Kola nuts	Lepidoturus laxiflorus, Bth. ♂
136	Toto	-	Oshogbo, W. Africa	„	-	Hugonia Planchoni, Hk. fil.
137	Itakun okkerre	"The squirrel's climbing place."	„ „	„	-	Grewia carpinifolia, Juss.
138	Atorin	-	Ilesha „	„	Remedy for gonorrhea internally, also as tonic.	Glyphea grewioides, Hk. fil.
139	Lasaje	-	Oshogbo „	Bush	-	Euphorbiaceæ ? nr. Microdesmis.
140	Ashasha	-	„ „	„	-	Alsodeia subintegrifolia, P. de B. ?

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No.	Yoruba Name.	Meaning of Yoruba Name.	Place found.	Description.	Medicinal or other Uses.	Scientific Name.
141	Okpwe Igo	"The Igo palm"	Oshogbo, W. Africa	Plant	Decoction of seed for dysentery, and for gonorrhea.	Cyrtosperma sp.
142	„	„	„ „	„	-	Cyrtosperma sp.?
143	„	„	„ „	„	-	Cyrtosperma sp.
144	Okka kpukpaw	"Red guinea corn"	Ikirun „	„	Red dye	Sorghum vulgare, var.
145	-	-	Ibadan „	„ handsome red flower just appearing above ground.	Decoction used for sore throat, laryngitis.	Thonningia sanguinea, Vahl.
146	-	-	Ikirun „	Plant	-	Phyllanthus capillaris, M. Arg.?
147	Own Sonyun	"Silk-cotton"	„ „	„	Native brown cotton, coloured like the native silk or sonyun.	—
148	-	-	„ „	Gum of tree, of which specimens were not obtained.	—	—
149	Akoko	-	-	Rope. Herbarium specimens not obtained.	Bark used medicinally for colic, mixed with Melaguetta pepper. Young leaves used for same purpose when macerated in cold water, strained, and the liquor mixed with corn starch. Stem of the tree used for posts and beams for building purposes. Rope made from inner bark, largely used by Houssas and Yorubas for horse ropes, &c. Tree found plentifully throughout the Ijesha forests, and cultivated in the groves of the god Oyun, the Yoruba Mars.	—

Gums.

I consider the three varieties of Ojiya (Ojea) met with to be worth further investigation, not cultivated, forest trees.

4. Akkaw L'odo. (*Brachystegia* n. sp. ?) Apparently a valuable gum of the Acacia family, similar to gum arabic. One of the many Acacia gums of West Africa. Supply of the trees practically unlimited, percentage of yield per tree not ascertained. Could only be gathered during the dry season.

Fibres.

9. Agbari Ettu. (*Alafia* sp. ?) Very considerably used, not cultivated, plentiful; might, if of value, become an object of export, but its value for any but native use appears doubtful.

28. Fe-ru, or Rawaye. (*Cochlospermum tinctorium.*) Bark makes good rope, largely used as such by Yorubas and Houssas; plentiful, sufficient supply for exportation, not cultivated.

64. Ake-iri. (*Urena lobata.*) Fair rope bark, used for various purposes by Yorubas and Houssas, chiefly in house building; plentiful, not cultivated.

Fruit.

14. Edible Fig. (*Ficus guineensis.*) Used as article of food in raw state, flavour agreeable and almost equal to ordinary fig, yellow when ripe; very plentiful, not cultivated.

I have not tried drying the fruit, but consider the experiment worth trying.

Dyes.

28. Fe-ru, or Rawaye. (*Cochlospermum tinctorium.*) Good yellow dye, largely used by Houssas in conjunction with Elu (indigo) for making the sacred green dye which is a secret trade of certain Houssa families. Not cultivated, very plentiful all over Yoruba-land, not used by Yorubas.

144. Red guinea corn. (*Sorghum vulgare.*) Grain edible but not used. Cultivated as a dye plant, excellent red dye; plentiful, could be exported, but doubt if it would compete with other red dyes; an experiment would be advisable.

10, 18, 116. Buje. (*Randia* spp.) Three varieties; plentiful, not cultivated. Fruit only used as colouring for tattooing, apparently not available as an article of export.

CCXI.—PLANTING IN PERAK.

(No. 171.—Circular.)

Notice to Planters, &c.—The Government of Perak, being desirous of encouraging agriculture in the State, draws attention to the existence of large areas of virgin land available for both hill and low country cultivation, and to the following, among other, advantages which this State holds out to intending planters :—

(*a.*) Proximity to Singapore and Penang—two days' steam from the former and six hours from the latter.

(*b.*) The country is traversed by good metalled cart-roads.

(*c.*) Taiping, the capital, is connected with its port, at Port Weld, by a short railway. A railway connecting the Port of Teluk Anson with the inland districts of Batang Padang and Kinta is under construction.

(*d.*) Arrangements have been in force for seven years with the Government of India, admitting of the introduction of indentured Indian labour.

(*e.*) Arabian coffee has given satisfactory results on an estate of about 1,000 acres, opened by Sir Graeme Elphinstone, in the Kuala Kangsa District, while Mr. Heslop Hill's Liberian coffee estate of about 300 acres in the same district is most promising.

(*f.*) Attached will be found a return showing remarkable crops of Liberian coffee on Messrs. Hill and Rathborne's estates in neighbouring States of the Malay Peninsula.*

(*g.*) Tea grown by Government as an experiment, and shipped to England, has been favourably reported on by London brokers.

(*h.*) The Government of the State is carried on under the advice of a British Resident, with a staff of European officers, and under the supervision of his Excellency the Governor of the Straits Settlements.

2. The Government is prepared to grant the following special terms to the first ten approved applicants who shall apply after this date, that is to say : Lease or leases in perpetuity for 1,000 acres in one block or in blocks of not less than 500 acres each. No premium ; quit-rent 20 cents an acre after two years' free occupation. The Government reserves the right of levying an export duty on produce, which may not exceed $2\frac{1}{2}$ per cent. *ad valorem*. If selected with road frontage the depth to be three times the frontage ; *bonâ fide* commencement to open to be made within 12 months from Government approval of selection ; cost of demarcation and survey (to be made when required by Government) and registration fees to be borne by lessees. If desired by applicants, a premium of $3 an acre and no quit-rent will be accepted.

Minerals are reserved, and, with the above exceptions, the land would be subject to the general Land Regulations of the State, which will be forwarded on application to the State Commissioner of Lands, Taiping, to whom all communications in connexion with this circular should be addressed.

By command,
W. H. Treacher,
Secretary to Government.

Government Secretary's Office,
Taiping, 22nd April 1891.

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* This is not printed, as similar information has already been given in the *Kew Bulletin* for 1888, p. 262, and 1890, p. 107.

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